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COMMITTEE ON THE PEACEFUL
USES OF OUTER SPACE

IMPLEMENTATION OF THE RECOMMENDATIONS OF THE SECOND UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

International cooperation in the peaceful uses of outer space: activities of Member States

Note by the Secretariat

Addendum

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INTRODUCTION

1. In accordance with a recommendation of the Committee on the Peaceful Uses of Outer Space at its thirty-eighth session,[1] Member States have submitted information on the following topics:

(a) Those space activities that were or could be the subject of greater international cooperation, with particular emphasis on the needs of developing countries;

(b) Spin-off benefits of space activities.

2. Information on those topics submitted by Member States as of 31 October 1995 is contained in document A/AC.105/614. Information submitted between 1 November and 15 December 1995 and between 16 December 1995 and 25 January 1996 is contained in documents A/AC.105/614/Add.1 and A/AC.105/614/Add.2, respectively.

3. The present document contains information on those topics submitted by Member States between 26 January and 14 February 1996.

[1]Official Records of the General Assembly, Fiftieth Session, Supplement No. 20 (A/50/20), para. 156.

REPLIES RECEIVED FROM MEMBER STATES*

LEBANON

[Original: English]

1. Introduction

Lebanon is a member of the United Nations Committee on the Peaceful Uses of Outer Space. Space-related activities started in the country in the 1960's with the installation of a terrestrial station for telephone communication through satellite. Unfortunately the war has not only stopped development in this field, but also crippled most endeavours along this line, one of the most notably affected being the acquisition of basic information.

With the recovery of peace in the early 1990's, some activities were resumed and efforts are being spent to reach new developments. At present, the application of space-related technology in Lebanon is restricted to the use of satellite capabilities in the following areas:

(a) Space telecommunications

(b) T.V. broadcasting

(c) Meteorological information

(d) Earth observations - remote sensing.

(a) Space telecommunications

The Ministry of Post and Telecommunication (PT) is the national authority supervising and facilitating telecommunication channels through satellites. It has provided all means needed by public and private sectors for establishing up-link and down-link connections. These links are being used for telephone, television and related purposes in analogue t. ansmissions via four terrestrial stations based in different localities to cover the whole country.

(b) T.V. broadcasting

There is one public and many private broadcasting stations. They have their own means for down-link connection only, but may use the facilities available at the PT Ministry for up-link connections. Recently the government is attempting to have a more controlled system by working on upgrading the legislation and technical regulations for that purpose.

The satellites being used for telecommunications and television broadcasting are: ARABSAT, ASTRA, EUTELSAT, HOT BIRD, Inmarsat, INTELSAT, INTERSPUTNIK and TELECOM. In the near future, it is planned to have one terrestrial station for numerical transmission through INTELSAT.

Lebanon is a shareholder in the Intermediate Circular Orbit (ICO) project for mobile service by Inmarsat satellites. The starting date for this application is expected to be June 1999. By that time there will be enough communication channels for telephone and television broadcasting to meet all the needs of communications and local television stations.

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*The replies are reproduced in the form in which they were received.

(c) Meteorological information

There is a meteorological station at Beirut international airport which receives information from meteorological satellites (geostationary and others) such as: METEOSAT, NOAA and EUTELSAT.

(d) Earth observations and remote sensing

The Lebanese National Council for Scientific Research decided in early 1995 to establish the National Center for Remote Sensing.

(i) Aims of the Center

The aims of the Center include the following:

(a) Formulating and implementing scientific and planning programs needing remote sensing technology.

(b) Cooperating with and assisting the public and private sector organizations, institutes, etc. in planning and implementing the use of remote sensing and geographical information systems (GIS) in their operations, with emphasis on environmental concerns.

(c) Securing databases from satellite imagery on a timely basis in different areas and disciplines and making the information available, as needs arise, to the public and private sector.

(d) Interacting and cooperating with remote sensing centers, both regional and international, for purposes of scientific progress and in the public interest, ensuring information on environmental issues.

(e) Establishing the needed in-house and field support systems and laboratories for ground "truths" and confirmation of remotely sensed data.

(f) Training and capacity building of personnel for the Center as it grows and for other purposes as needs arise.

(g) Formulating and advising on actions and policies related to conventions, protocols, agreements, or otherwise related to remote sensing with regional and international counterparts or governments.

(ii) Projects launched

In cooperation with the Syrian General Organization of Remote Sensing (GORS), the following projects are being pursued:

(a) Agriculture: Formulating the unified pedological map for Lebanon at a scale of 1:50,000.

(b) Hydrogeology: Studying the fresh water sources along the Lebanese marine-beach stretch.

(c) Geology: Studying iron ore deposits that lie along the border between Lebanon and the Syrian Arab Republic. Another potential project involves producing an accurate map of the tectonic regime of the great Syrian rift along the eastern Mediterranean in Lebanon and the Syrian Arab Republic.

(d) Archaeology: Through financial help from UNESCO, a team is looking into untouched archaeological sites of interest in cooperation with Italy's Torino CST institute.

(iii) Aid needed

Our Center's needs are summarized as follows:

(a) Training our personnel in the basic procedures of imagery processing and its applications, including GIS handling and data processing.

(b) Supply of equipment (hardware, software and field verification).

(c) Building up our Center's capacities: sources of information, books and journals, documentation support systems, conferences, etc.

MOROCCO

[Original: French]

1. Activities undertaken in 1995 in the area of the peaceful uses of outer space

The space activities carried out in 1995 by Morocco are characterised by an active, realistic and long-term policy at both the national level (coordination, information, training and project formulation) and the international level (participation in forums, international committees and bilateral and multilateral projects). The use of outer space is becoming ever more developed, extensive and diversified.

(a) Space telecommunications and data

Morocco currently operates three satellite stations providing national and international circuits (the Mohammed V station at Rabat, a station at Laayoune and another one at Dakhla).

It is a partner in the operation of the ARABSAT system and has signed a cooperation agreement with EUTELSAT and INTELSAT for the direct transmission of national television and radio programmes in Europe, Canada, the United States of America and certain Scandinavian countries.

In 1995 it became linked to the international Inmarsat network and to the VSAT business communication network. These networks are managed by the government department with competence for them, namely the Ministry for Post and Telecommunications.

In addition, the National Office for Post and Telecommunications, which comes under this Ministry, carried out an extensive modernization programme in 1995 in order to digitize and extend the entire equipment of Earth stations.

With regard to satellite data, stations are currently in operation to receive METEOSAT weather satellite data, for example at the National Department of Meteorology (DMN).

There are plans to set up two NOAA stations, one for meteorological studies at the DMN and the other at the Royal Centre for Spaceborne Remote Sensing (CRTS) for receiving advanced very high resolution radiometer (AVHRR) data. This station is to be set up within the framework of the GLOVE project, which is co-financed by the European Union.

The distribution of satellite images in the Kingdom is the responsibility of CRTS. In order to accomplish this task, the Centre has concluded contacts with a number of satellite image distributors: Spot Image in France for Spot data, Eurimage in Italy for LANDSAT, NOAA, ERS and IRS data, etc. CRTS is also responsible for centralizing the national archives of satellite data and data from projects using spaceborne remote sensing.

2. Applications and projects

(a) Radiolocation

A programme for locating and tracking ships at sea by satellite is currently being set up by the Ministry for Maritime Fisheries and the Merchant Navy. It involves two systems:

- A position-finding system;

- A transmission system.

The aim of this programme is to locate and track fishing boats in the Moroccan Exclusive Economic Zone (EEZ) by establishing four centres equipped to provide automatic position-finding, to exchange and transmit data and to establish the associated database. The position-finding and transmission functions will be performed by satellite.

(b) Data exchange and information networks

CRTS is coordinating Moroccan efforts to set up the Cooperation Information Network (COPINE) project launched by the United Nations Office for Outer Space Affairs. This project aims to establish satellite communication stations (INTELSAT) in a number of African countries enabling them to exchange data with each other and with European countries, particularly in the areas of the environment, natural resources and telemedicine. The opening up of rural areas is a facet of the project of particular interest to national users.

(c) Remote sensing

A number of projects combining spaceborne remote sensing and geographic information systems (GIS) are in the process of development or implementation. These projects are designed to meet needs in the areas of natural resource stocktaking and management, environmental protection and town and country planning within the context of national and regional development programmes.

- With regard to natural resources and the environment, several significant projects might be mentioned:

  (a) The national AGRIMA project (co-financed by UNDP, the Ministry for Agriculture and CRTS) on the incorporation of satellite data in the country's agricultural statistics;

  (b) The FORMA project (at the development stage and co-financed by the European Union, the Ministry for Agriculture and CRTS) on satellite surveillance of Moroccan forests;

  (c) A study on the changes in land use and the estimation of the biomasses involved (financed by UNEP/GEF and managed by the Ministry for the Environment);

  (d) The GEOSTAT project on vegetation mapping and the survey of common grazing land in Morocco, with the collaboration of CRTS, the Ministry for Agriculture and the French

National Centre for Space Studies (CNES). CRTS and CNES are currently working with the Sahara and Sahel Observatory to consider the possibility of extending this study to the region.

- With regard to the coastline and marine environment monitoring:

  (a) Morocco is currently working on applications for lagoon management and beach mapping;

  (b) The national GERMA project (co-financed by the European Union, the Ministry for Maritime Fisheries and the Merchant Navy and CRTS), for the development of a system based on satellite images for marine resource management, is in the implementation phase;

  (c) Morocco has participated in the airborne GLOBESAR campaign initiated by Canada to prepare for the launching of that country's RADARSAT satellite and, in that connection, has embarked on coastline and soil erosion research.

- In the area of town planning, CRTS, together with the Rabat Urban Agency and Belgian Cooperation, is setting up a project using satellite data to monitor cities in developing countries. The aim of this project is to take advantage of existing methodologies and adapt them to towns with high growth rates.

3. Information and training in space techniques

(a) Remote sensing

Seminars, exhibitions and information events have been organized on a regular basis in order to make decision makers, officials and scientists aware of the existing and potential applications of remote sensing.

In the area of ongoing training, CRTS has continued organizing short (one-week) and longer (two-week) courses to provide an introduction into the basic principles of spaceborne remote sensing, geographic information systems, and applications in areas of particular interest to the Kingdom and the region. These courses, especially those relating to water resources, desertification, common grazing land and the management of fishery resources, are regularly attended by African participants in positions of responsibility.

By way of supplementing these training programmes, CRTS organized several training events in 1995 at the request of users. At the request of FAO, for instance, a regional training event, geared to the four Atlantic coast countries (Guinea, Mauritania, Morocco and Senegal) comprising the test area for the "Regional Marine Database-BDRM" convention, was held on the use of GIS.

(b) Space technology

Morocco has been chosen as host country for the Regional Centre for Space Science and Technology Education located at the Mohammadia Engineering School (EMI). Studies have already been initiated to establish training programmes and means of financing.

4. Regional and international activities

Morocco has continued to intensify its involvement in regional and international space-related activities by:

- Taking an active part in meetings organized by regional and international organizations for the purpose of identifying the needs of developing countries and proposing ways and means of encouraging the use of space technology in Africa;

- Organizing international events to promote scientific exchange and North-South and South-South cooperation, particularly in the area of spaceborne remote sensing and its use in the management of natural resources, environmental protection and the formulation of strategies for sustainable development;

- Providing expert assistance in setting up programmes and projects concerning the region.

Morocco, for instance, was selected in 1995 to assist in mounting the FAO project AFRICOVER on the African continent.

In addition, together with the Scientific Institute of Fisheries and the National Meteorological Directorate, CRTS organized in collaboration with the Intergovernmental Oceanographic Commission (IOC), FAO, WMO and the European Union an international workshop on the subject: "Space oceanography: climate and marine resources in North-West Africa". Eleven countries, five of them from Africa, took part in this event, which provided an opportunity to review the current situation in this field. The workshop also took the first steps towards establishing a regional programme on aspects of climatology and oceanography on the basis of satellite images under the direction of IOC, FAO and CRTS.

As a follow-up to MARISY 92, MARISY 95, on spaceborne remote sensing for the environment and development in the spirit of the recommendations of Agenda 21, has been organized by Morocco in collaboration with space agencies and regional and international organizations.*

MARISY 95 has brought together decision makers, users and specialists from 37 industrialized and developing countries, including 25 African nations and countries of the Middle Eastern region.

In its work, this forum has focused on applications of spaceborne remote sensing in areas of high priority for developing countries: oceanography and fisheries, agricultural and forestry, water resources and geology, town planning, cartography and land development. A special session was devoted to training, access to data and cost-benefit ratios.

During this forum an international jury awarded the MARISY 95 prize of 100,000 US dollars to Benin, Senegal and Tunisia for the three best projects from the region.

The forum's conclusions took the form of a declaration that it adopted on spaceborne remote sensing for the environment and development, which is devoted particularly to developing countries.

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*UNDP, ECA, FAO, the European Union, MEDIA-IGBP, the African Organization for Cartography and Remote Sensing, EURISY, the European Space Agency and a number of national space agencies: ASI (Italy), CNES (France), INTA (Spain) and SSTC (Belgium).